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EXAMINER

HOLMES, MICHAEL B

ART UNIT PAPER NUMBER

2121

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/865,828

**Applicant(s)**

HEARD, NICHOLAS

**Examiner**

Michael B. Holmes

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on January 24, 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/865,828.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01022002.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: Detailed Office Action.



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### Examiner's Detailed Office Action

1. This Office Action is responsive to application 09/865,828, filed May 24, 2001.
2. Claims 1-22 have been examined.

### Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Applicant's invention disclosed in claims 1-15 are directed to nonstatutory subject matter i.e., an *abstract idea*. It is the examiner's position applicant's invention as claimed is not limited to a *practical application* in the technological arts. The claims *appear* to be directed towards a method and apparatus performed on a computer. However, examination has revealed no computer or computer-readable medium has been disclosed by applicant.
5. This deficiency can lead to speculation that applicant's invention may be implemented on paper or by some other means not associated with a computing device. Examiner will not speculate as to the intended meaning, and will leave that to applicant to further clarify, since

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applicant discloses no “certain substances” that have been “transformed or reduced” that is, applicant claims disclose no *specific* computer or computer-readable medium.

6. Furthermore, there is no manipulation of *specific* data representing physical objects or activities constituting what one may classify as pre-computer activity, nor does applicant disclose any *specific* independent physical acts being performed by the invention constituting post-computer activity. As aforementioned, it is the examiner’s position the claims as presented are nonstatutory, and merely manipulate *abstract ideas* in general without limitation to a practical application whereby “certain substances” are transformed or reduced on a computer or a computer-readable medium.

7. Therefore, claims 1-15 are rejected under 35 USC § 101.

8. It should be noted that if the claims were amended to recite a “computer,” “processor,” “computer-implemented,” or whatever word(s) or phrase(s) the specification recites for that feature of the computer the rejection under 35 USC § 101 would be withdrawn.

### Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

10. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

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do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

11. Claims 1-2, 13-17, 19-20 & 22 are rejected under 35 U.S.C. 102(e) as being anticipated by *Nakisa* (USPN 6,480,832 B2).

Regarding Claim 1. *Nakisa* describes a method of determining one or more statistical estimators of future customer behavior [*see* FIG. 1, C 2, L 45-48], the method comprising the steps of:

- (i) accessing data about past customer behavior [*see* FIG. 1, C 2, L 48-52];
- (ii) generating a Bayesian statistical model using the data about the past customer behavior [*see* C 1, L 46-49 & FIG. 2; C 2, L 63 to C 3, L 8]; and
- (iii) using the model to generate one or more statistical estimators of future customer behavior [*see* FIG. 2, C 2, L 60-65 & C 3, L 8-25].

Regarding Claim 2. *Nakisa* describes a method as claimed in claim 1, further comprising the step of accessing information about customer attributes, and wherein the model is generated using the information about customer attributes [*see* C 2, L 45 to C 3, L 6 *Examiner interprets the attributes as age, sex, income, etc.*].

Regarding Claim 13. *Nakisa* describes a method as claimed in claim 1, wherein the statistical estimators comprise a probability that a customer will exhibit a certain behavior [*see* C 3, L 7-26 *Examiner interprets the certain behavior as whether or not a customer may make use of services*

*such as Internet banking, telephone banking and purchase of insurance*].

Regarding Claim 14. *Nakisa* describes a method as claimed in claim 1, wherein the statistical estimators comprise the most probable behavior exhibited by customers [see C 3, L 22-26 *Examiner interprets the causal behavior as the most probable behavior exhibited by customers*].

Regarding Claim 15. *Nakisa* describes a method as claimed in claim 1, wherein the past customer data comprises information about customer transactions [see C 2, L 45-59 *Examiner interprets past customers data as the bank record of transactions*].

Regarding Claim 16. *Nakisa* describes a computer system for determining one or more statistical estimators of future customer behavior, the computer system [see FIG. 3; C 3, L 34-42]

comprising:

an input for accessing data about past customer behavior [see FIG. 3, item 30]; and

a processor for generating a Bayesian statistical model using the data about the past customer behavior [see FIG. 3, item 33], and

using the model to generate one or more statistical estimators of future customer behavior [see C 1, L 46-49 & FIG. 3 & FIG. 5, C 3, L 43-52].

Regarding Claim 17. *Nakisa* describes a computer system as claimed in claim 16, wherein the data about past customer behavior comprises customer attributes [see C 2, L 45-59 *Examiner interprets past customers data as the bank record of transactions*].

Regarding Claim 19. *Nakisa* describes a computer program for controlling a computer system such that one or more statistical estimators of future customer behavior are determined, the computer program [*see* FIG. 3, item 33, C 3, L 43-46] being arranged to control the computer system such that:

- (i) data about past customer behavior is accessed [*see* FIG. 1, C 2, L 45-52];
- (ii) a Bayesian statistical model is generated using the data about the past customer behavior [*see* C 1, L 46-49 & FIG. 2, C 2, L 63 to C 3, L 8]; and
- (iii) using the model, one or more statistical estimators of future customer behavior are generated [*see* C 1, L 46-49 & FIG. 2, C 2, L 60-65 & C 3, L 8-25].

Regarding Claim 20. *Nakisa* describes a computer program as claimed in claim 19, wherein the data about past customer behavior comprises customer attributes [*see* C 2, L 45-59 *Examiner interprets customers of the bank as the source of past data*].

Regarding Claim 22. *Nakisa* describes a program storage medium readable by a computer system having a memory [*see* FIG. 3, item 35], the medium tangibly embodying one or more programs of instructions executable by the computer system to perform method steps for controlling the computer system to determine one or more statistical estimators of future customer behavior, the method comprising the steps of:

- (i) accessing data about past customer behavior [*see* FIG. 1, C 2, L 45-52];
- (ii) generating a Bayesian statistical model using the data about the past customer behavior [*see* C 1, L 46-49 & FIG. 2, C 2, L 63 to C 3, L 8]; and

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(iii) using the model, generating one or more statistical estimators of future customer behavior

[see C 1, L 46-49 & FIG. 2, C 2, L 60-65 & C 3, L 8-25].

## Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 3, 4, 7 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nakisa* (USPN 6,480,832 B2) further in view of *Brand* (USPN 6,212,510 B1).

The *Nakisa* reference has been discussed above and does not explicitly teach the limitation of a Hidden Markov Model embodied in claim 3 & 4, and the further limitations of claims 7 & 8. However, *Brand* teaches the limitations of a Hidden Markov Model embodied in claim 3 & 4, and the further limitations of claims 7 & 8.

Regarding Claim 3. *Brand* describes a method as claimed in claim 1, wherein the model comprises a representation of the customer behavior in the form of a hidden Markov model [see Abstract, It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Nakisa* with *Brand* because hidden Markov models are widely used for modeling and classifying signals (see C 1, L 58-59)].



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Regarding Claim 4. *Brand* describes a method as claimed in claim 3, wherein the hidden Markov model has a random number of states [see Fig. 8A, C 2, L 63 to C 3, L 11 *Examiner interprets entropic as randomness*, It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Nakisa* with *Brand* because hidden Markov models are widely used for modeling and classifying signals (see C 1, L 58-59)].

Regarding Claim 7. *Brand* describes a method as claimed in claim 4, wherein each state is characterized by a plurality of random state parameters [see C 2, L 63 to C 3, L 32, It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Nakisa* with *Brand* because hidden Markov models are widely used for modeling and classifying signals (see C 1, L 58-59)].

Regarding Claim 8. *Brand* describes a method as claimed in claim 7, wherein past data about a customer's behavior whilst that customer is in a particular state is assumed to follow a parametric probability model [see C 3, L 12-32, It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Nakisa* with *Brand* because hidden Markov models are widely used for modeling and classifying signals (see C 1, L 58-59)].

14. Claims 5, 6, 18 & 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nakisa* (USPN 6,480,832 B2) further in view of *Heckerman et al.* (USPN 5,704,017).

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The *Nakisa* reference has been discussed above and does not explicitly teach the limitation of clustering embodied in claims 5, 18, & 21 and the further limitation of claim 6. However, *Heckerman et al.* teaches the limitations of clustering in claims 5, 18 & 21 and the further limitation of claim 6.

Regarding Claim 5, 18 & 21. *Heckerman et al.* describes a method wherein the step of generating the model comprises clustering the past customer behavior data into a plurality of states [see C 3, L 39-53 & C 4, L 53 to C 5, L 19 & C 6, L 9-16, It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Nakisa* with *Heckerman et al.* because collaborative filtering systems have been developed that predict the preferences of a user (C 1, L 11-12)].

Regarding Claim 6. *Heckerman et al.* describes a method as claimed in claim 5, wherein the behavior of each customer over time is represented as a path through a plurality of the states and wherein these paths are unobserved and are considered random [see Abstract & FIG. 11, item 1101, C 13, L 58-60, It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Nakisa* with *Heckerman et al.* because collaborative filtering systems have been developed that predict the preferences of a user (C 1, L 11-12)].

15. The subject matter of Claims 9, 10, 11 & 12 appears to define over the prior art. Any indication of allowability is being held in abeyance pending the resolution of the 35 USC § 101 issues.

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### Correspondence Information

16. Any inquires concerning this communication or earlier communications from the examiner should be directed to Michael B. Holmes, who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 272-3686 or facsimile transmission (571) 273-3686 or email [Michael.holmesb@uspto.gov](mailto:Michael.holmesb@uspto.gov).

If you need to send an Official facsimile transmission, please send it to (703) 746-7239.

If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, Anthony Knight, may be reached at (571) 272-3687.

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

A handwritten signature in black ink, appearing to read 'Michael B. Holmes', with a stylized flourish at the end.

**Michael B. Holmes**

Patent Examiner  
Artificial Intelligence  
Art Unit 2121

United States Department of Commerce  
Patent & Trademark Office

*Sunday, February 06, 2005*

*MBH*